

KRUSCHKE NAMES IN NORTH AMERICAN *CRATAEGUS* (ROSACEAE)

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ABSTRACT

Thirteen names associated with new combinations of E.P. Kruschke are typified: these are: *C. apiomorpha* Sarg., *C. aboriginum* Sarg., *C. cyanophylla* Sarg., *C. divida* Sarg., *C. ferrissii* Ashe, *C. gemmosa* Sarg., *C. integriloba* Sarg., *C. mollis* (Torr. & A. Gray) Scheele var. *incisifolia* Kruschke, *C. pertomentosa* Ashe, *C. pisifera* Sarg., *C. rugosa* Ashe, *C. schuettei* Ashe var. *gigantea* Kruschke, *C. virella* Ashe.

RESUMEN

Se tipifican trece nombres asociados a nuevas combinaciones de E.P. Kruschke: éstas son: *C. apiomorpha* Sarg., *C. aboriginum* Sarg., *C. cyanophylla* Sarg., *C. divida* Sarg., *C. ferrissii* Ashe, *C. gemmosa* Sarg., *C. integriloba* Sarg., *C. mollis* (Torr. & A. Gray) Scheele var. *incisifolia* Kruschke, *C. pertomentosa* Ashe, *C. pisifera* Sarg., *C. rugosa* Ashe, *C. schuettei* Ashe var. *gigantea* Kruschke, *C. virella* Ashe.

The late Wisconsin botanist Emil P. Kruschke (d. 1974) was very interested in *Crataegus* taxonomy in the middle of the last century and published a number of novelties in his 'Contributions to the Taxonomy of *Crataegus*' (Kruschke 1965). Kruschke's opus is a large and primarily nomenclatural work. It is his only taxonomic paper on *Crataegus*, but one that is widely cited. Kruschke's new taxa are mostly very local and from Wisconsin and Illinois some of which are probably interserial hybrids. The latter have been largely ignored in later works on the genus and none figure in this paper. He also described a number of local 'formae' which I am not using. However, he rationalized a lot of the existing taxonomy by reducing to varietal status about 20 early 20th century names mainly by Sargent and Ashe. These names, being of mostly rather wide-ranging and commonly accepted taxa, in many cases fairly easy to identify, consequently have ample currency in later literature. Unfortunately, Kruschke did everything correctly except precisely cite their types as he generally made no choice between his flowering and fruiting syntypes. It is this oversight which is corrected here so as to validate those of his new combinations that will be used in FNA vol. 9 (Rosaceae). In one case, that of *C. apiomorpha* Sarg., it became necessary to lectotypify a species that is not a varietal basionym. The 13 validations made in this paper, which usually required lectotypification, follow hereunder and are arranged alphabetically by the name that Kruschke or Sargent used.

SARGENT NAME

1. *Crataegus apiomorpha* Sarg., Bot. Gaz. 35:38. 1903. TYPE: U.S.A. ILLINOIS. Cook Co.: Tinley Park, near Chicago, 3 Sep 1902, E.J. Hill 49C (LECTOTYPE designated here: A).

Comment.—The syntypes were a mixed a gathering and I accept Kruschke's (1965) suggestion about the type in here validating an entity with pubescent inflorescences.

Crataegus apiomorpha is now definitively treated as a pubescent entity that is similar to *C. macrosperma* Ashe. According to Sargent (1903) it was common near Chicago.

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2. *Crataegus apiomorpha* var. *cyanophylla* (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:174. 1965. BASIONYM: *Crataegus cyanophylla* Sarg., Bot. Gaz. 35:387. 1903. TYPE: U.S.A. ILLINOIS. Will Co.: Joliet, 9 May 1902, H.C. Steele s.n. (LECTOTYPE designated here: A).

Comment.—There is a matching fruiting specimen on the same sheet.

As with *Crataegus apiomorpha*, Sargent's syntypes of *C. cyanophylla* comprised both pubescent and glabrous

inflorescence specimens. Most of the syntypes are of the glabrous kind and it is one of these that is selected for the *cyanophylla* lectotype. The leaf shape of this is, in any case, different from the pubescent form [represented by *C. apiomorpha*] and its young leaves are much less densely scabrous-pubescent. *Crataegus cyanophylla* was considered to be worth describing by Sargent because of its strongly blued-tinted (i.e., presumably rather glaucous) leaves. However, this does not show on herbarium specimens and as such they cannot be differentiated from *C. macrosperma*.

3. *Crataegus chrysoarpa* Ashe var. *aboriginum* (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:164. 1965. BASIONYM: *Crataegus aboriginum* Sarg., Rhodora 5:163. 1903. TYPE: CANADA. QUEBEC. La Prairie Co.: Caughnawaga, 27 May 1900, J.G. Jack 45 (LECTOTYPE designated here: A).

Comments.—The choice of lectotype is, unusually, a flowering specimen still in bud and is selected to illustrate the very conspicuous and abundant large bracteoles which have stipitate marginal glands. CANADA: Quebec: La Prairie Co.: Caughnawaga, 30 May 1900, J.G. Jack 45 (EPITYPE designated here: A). *Comment.*—An epitype is needed to show well-developed floral features that are more familiar to identifiers of hawthorns; however by full anthesis it is very difficult to locate any of the distinctive caducous bracteoles.

Crataegus aboriginum, now that it has been critically examined for typification, is seen to have a completely glabrous inflorescence (in contrast to some later usage) and conspicuously glandular bracteole margins and thus can no longer be treated as part of the *C. chrysoarpa* complex in FNA. Rather, it belongs to the *C. dodgei* complex. *Crataegus aboriginum* has been generally construed as the glabrous hypanthium form of eastern *C. chrysoarpa* with thinly pubescent pedicels but this is clearly wrong.

4. *Crataegus macracantha* Lodd. ex Loud. var. *pertomentosa* (Ashe) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:161. 1965. BASIONYM: *Crataegus pertomentosa* Ashe, J. Elisha Mitchell Sci. Soc. 16:70. 1900. TYPE: U.S.A. MISSOURI. Jackson Co.: Dodson, 4 Oct 1906, B.F. Bush 4160 (NEOTYPE designated here: MO).

Comments.—This variety was described from Johnson Co., Kansas but I cannot locate an Ashe putative syntype. Dodson is now part of Kansas City, Mo.

Variety *pertomentosa* is distinguished from other forms of *C. macracantha* by its strong abaxial leaf pubescence and its distribution is mapped, in part, in McGregor and Barkley (1977). Recently (Sep 2007), I have collected entirely typical material of this in the Judith Mtns., MT. I was impressed by its thin and also smallish leaves. It seems to me to be one of the better-marked forms of *C. macracantha*.

5. *Crataegus macracantha* Lodd. ex Loud. var. *divida* (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:161. 1965. BASIONYM: *Crataegus divida* Sarg., Bot. Gaz. 35:401. 1903. TYPE: U.S.A. ILLINOIS. Lake Co.: near Barrington, 22 May 1901, E.J. Hill 38A (LECTOTYPE designated here: A).

Comment.—a fruiting syntype reads “clay hills northeast of Barrington” which is what permits the deduction of the county (which is not on the label) whereas the lectotype label just reads “clay hills, nr. Barrington,” almost certainly, however, the same area. Otherwise the lectotype would be in Cook Co.

Crataegus divida seems to be similar to characteristic forms of *C. macracantha* except that it has glabrous inflorescences, thin leaves and ‘hard’ fruit.

6. *Crataegus macracantha* Lodd. ex Loud. var. *integriloba* (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:161. 1965. BASIONYM: *Crataegus integriloba* Sarg., Rhodora 3:78. 1901. TYPE: CANADA. QUEBEC. La Prairie Co.: Caughnawaga, 29 Aug 1899, J.G. Jack 28 (LECTOTYPE designated here: A).

Comment.—A flowering lectotype would have been preferable but instead a fruiting specimen has to be used as there is not a suitable flowering specimen among the syntypes. CANADA: Quebec: La Prairie Co.: Adirondack Jct., 30 May 1900, J.G. Jack 44 (EPITYPE designated here: A). *Comment.*—This species needs an epitype because the principal distinguishing mark (entire sepals) is a flowering characteristic.

7. *Crataegus mollis* (Torr. & A. Gray) Scheele var. *incisifolia* Kruschke, Milwaukee Public Mus. Publ. Bot. 3:128. 1965. TYPE: U.S.A. WISCONSIN. Rock Co.: Avon, along Sugar River, 27 May 1947, E.P. Kruschke K-47-8 (LECTOTYPE designated here: MIL, duplicate at A).

Comment.—Kruschke cited two syntypes as the type, from May and September 1947, respectively.

This variety is notable within *C. mollis* for its deeply and sharply incised leaves.

8. *Crataegus pruinosa* (H.L. Wendl.) K. Koch var. *rugosa* (Ashe) Kruschke, Milwaukee Public Mus. Publ.

Bot. 3:181. 1965. BASIONYM: *Crataegus rugosa* Ashe, J. Elisha Mitchell Sci. Soc. 17:5. 1900. TYPE: U.S.A. NORTH CAROLINA. Ashe Co.: 26–28 Sep 1908, W.W. Eggleston 4171 (NEOTYPE designated here: NCU).

Comment.—Ashe's protologue says Ashe and Watauga Cos. and northward, NC, but the remaining known specimens with the name *Crataegus rugosa* in Ashe's hand are much less specific. The Eggleston neotype was selected as it was the only NCU specimen seen from the type area and time frame that was a close match for the protologue. Twenty stamen-bases can be clearly seen..

This variety is distinguished by its usually broad leaves, many \pm truncate at the base.

9. *Crataegus pruinosa* (H.L. Wendl.) K. Koch var. ***virella*** (Ashe) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:181. 1965. BASIONYM: *Crataegus virella* Ashe, Ann. Carnegie Mus. 1:396. 1902. TYPE: U.S.A. PENNSYLVANIA. Berks Co.: Kutztown, May 1902, C.L. Gruber s.n. (LECTOTYPE designated here: PH 548493).

Comments.—According to the Ashe protologue the type would be a Gruber & Ashe collection but the lectotype does not say this on this label. The lectotype's leaves at anthesis are practically glabrous above but quite densely rough-hairy on the midvein abaxially, in agreement with the protologue.

This taxon is unique among the *pruinosa* complex by virtue of its conspicuously hairy foliage abaxially, at least young. It is also likely that forms with other, for instance, adaxial, pubescence and, possibly, inflorescence branch pubescence should be placed here. Other than this pubescence, *C. virella* appears to be a typical member of the *pruinosa* group.

10. *Crataegus schuettei* Ashe var. ***ferrissii*** (Ashe) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:176. 1965. BASIONYM: *Crataegus ferrissii* Ashe, J. Elisha Mitchell Sci. Soc. 17:11. 1901. TYPE: U.S.A. ILLINOIS: Lake Co.: northern Illinois, Forest Grove, May 1902, W.C. Egan s.n. (NEOTYPE designated here: A).

This entity is distinguished from other forms of *C. schuettei* by its fairly deeply divided leaf-margins wherein the more distal lobes point outwards at an angle and the proximal lobes are often held almost at right angles, rather as in *C. stolonifera* Sarg., and by the strongly glandular-serrate sepals. It is the most distinct form of this species.

11. *Crataegus schuettei* Ashe var. ***gigantea*** Kruschke, Milwaukee Public Mus. Publ. Bot. 3:75. 1965. TYPE: U.S.A. WISCONSIN: City of Milwaukee, north side, 16 Sep 1942, E.P. Kruschke K-42-288 (LECTOTYPE designated here: MIL; ISOLECTOTYPE: A).

This variety was distinguished by its particularly large flowers and fruit.

12. *Crataegus succulenta* Schrad. ex Link var. ***gemmosa*** (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:159. 1965. BASIONYM: *Crataegus gemmosa* Sarg., Bot. Gaz. 33:119. 1902. TYPE: CANADA. ONTARIO. Middlesex Co.: London, 22 Sep 1901, C.S. Sargent 15 (LECTOTYPE designated here: A).

Comment.—There are quite numerous syntypes of *C. gemmosa*, several in fruit, and the lectotype is selected for displaying the largest size fruit, ca. 12–15 mm diam. when rehydrated, which is what is typical for *C. gemmosa* according to the protologue.

It is distinguished from other forms of *C. succulenta* by its larger fruit; otherwise it is a typical *C. succulenta* type with 20 small rose anthers.

13. *Crataegus succulenta* Schrad. ex Link var. ***pisifera*** (Sarg.) Kruschke, Milwaukee Public Mus. Publ. Bot. 3:159. 1965. BASIONYM: *Crataegus pisifera* Sarg., Rhodora 7:163. 1905. TYPE: U.S.A. VERMONT. Addison Co.: Cornwall, 26 Jul 1901, E. Brainerd 15d (LECTOTYPE designated here: A).

Comment.—Sargent designated the type number in his protologue.

This taxon was separated primarily on the basis of its very small fruit but while this size does obtain in the lectotype that specimen has immature fruit which may well have become larger as in some other syntypes. Thus, perhaps this differentium is not as reliable as earlier believed. However, in spite of this, syntype flowering material of var. *pisifera* is also differentiated from other forms of *C. succulenta* by a distinctive and unusual form of marginal lobing to the leaves.

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